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ABSTRACT

Reductions in resources and increases in external demands place schools under pressure that can be relieved to some extent by organizational changes. When resources are sufficient, these changes may take the form of technical rationality--that is, decisions concerning policy and practices are made on the basis of neutral, measurable data rather than professional judgments. When resources are not sufficient, districts often turn to corporatist representation, drawing outside groups into the decision-making structure. Both strategies increase organizational certainty by decreasing the extent to which outside interests can assume control over the organization's practices. This report reviews the aspects of organizational theory used to explain educational systems--institutional theory and loose coupling theory--and explains why these concepts support the hypothesis that external pressures would lead to organizational changes of the types found. Particular attention is paid to the problem of legitimizing authority in school organizations and the role of technocratic corporatism in this legitimizing process. The rest of the report describes the study, its methodology, and its findings. Data were drawn from government sources and from the 1976-77 Sustaining Effects Study, a survey of superintendents and principals in over 240 school districts across the country. Tables are included. (PGD)

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SCHOOLS UNDER PRESSURE:

THE EXTERNAL ENVIRONMENT AND RECENT ORGANIZATIONAL REFORMS

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INTRODUCTION

For American education, the past 20 years have been a time of seemingly unending problems and subsequent reforms. This paper analyzes these reforms as changes in the organizational structure of public schooling. Its perspective is that the structure of governance, management and instruction in public schools -- as well as their general goals -- are adopted by schools as responses to external conditions.

One of the central concepts of organizational theory is that organizations are dependent on their environments as a source of both resources (ranging from raw materials and labor to legitimacy) and constraints (including both formal laws and informal social norms). Another is that organizations seek to reduce uncertainty, unpredictability, and stress. Public schools were subject to a variety of environmental stresses during the sixties and seventies: demands for new programs from constituencies who believed they were underserved (the poor, women, non-English speaking, blacks, and the handicapped) and declining resources (as a result of declining enrollment, competition for public funds from other areas, and increased costs). In this paper, I discuss the relationship between school organizations and their environments, and explore the idea that decision-making structures in public schools have been changed in order to reduce uncertainties that originate in their social and political environment.

SCHOOL REFORMS AND ORGANIZATIONAL THEORY

The most prevalent perspectives from organizational theory that have been used to analyze education reforms have been those of institutional theory and loosely-coupled systems. Institutional theory focuses on explaining homogeneity among organizations rather than variation, and expands the concept of organizational controls beyond those that are formally designated (formalized rules and procedures). It emphasizes the importance of informal controls that derive their meaning from the wider, social environment, such as institutionalized norms, values, ideologies, and symbols.

Informal controls are particularly important for organizations described by Meyer and his colleagues as "institutional " (e.g. Meyer and Rowan, 1978; Meyer, Scott, and Deal, 1981). Within the framework produced by these authors -- which distinguishes between "technical" and "institutional" organizations -- differences in the way organizations relate to their environments are of central importance. Technical organizations are structured around routine technologies, are usually subject to some market controls, and aim to "decouple technical work from environmental conditions so it can be more tightly managed by the organization" (Meyer, et al. 1981). In contrast, institutional organizations rely on general external expectations about how they should operate, create structures in the form of categories that reflect these expectations (e.g. types of staff, programs, and facilities), and then allow their staff to work with relatively few specific controls on how they do their work.

According to institutional theory, the external environment of schools is a source of "institutional controls," which are more central to their legitimacy and success than "organizational controls," determined within school organizations themselves. The environment affects organizations in two ways through institutional controls -- formally, through the creation of structural categories that are regulated by law (such as types of staff, programs, and activities) and informally, through general agreements about what to expect from the structures that make up the system (such as how teachers should behave, what happens at an assembly, the grade structure of student grouping, or when vacations are scheduled).

As long as institutional organizations respond to changes in social expectations by redefining their structures, their technical processes and output are shielded from formal control and inspection from the outside. If institutional categories are formalized through state licensing, the licenses are granted on the basis of conforming to structural requirements, such as passing courses or having adequate facilities and programs, and not on the basis of output measures. This buffering of actual work activities (e.g. management and instruction in schools) is viewed as necessary because "core technologies" of institutional organizations are "uncertain," i.e. relationships between means and ends are not clearly specified.

Buffering of the technical core of schooling and lack of formal output control, however, is contingent on the "logic of confidence...the good-faith assumtion that the other is, in fact, carrying out his or her defined activity" (Meyer and Rowan, 1978:10). Output controls are not needed only because people generally believe

that the organization is performing satisfactorily. When this confidence erodes, one response is to change organizational structures, for example by establishing new programs. Another is to tighten organizational controls, the strategy reflected in many recent educational reforms. In this theory, because reforms that tighten organizational control by increasing rationality in management and instruction contradict institutionalized norms, they are seen as unstable and incapable of restoring the logic of confidence. Reforms that establish new structures, but allow behavior within those structures to be relatively unregulated, are viewed as more stable and more likely to restore confidence and legitimacy.

The concept of loosely-coupled systems, applied to public schools by Weick (1976), refers to control structures in which the behaviors of those who are lower in an organizational hierarchy are only loosely determined by formal organizational controls imposed from above. For example, much of the behavior of both principals and teachers is not specifically prescribed by formal organizational rules. Loose-coupling makes it possible for teachers and principals to adjust programs to local conditions, and to be able to use professional judgment to make decisions about individuals. It also makes it difficult to implement large-scale reforms that assume that programs can be changed by issuing bureaucratic directives.

Applications of institutional and loose-coupling theory to public schooling were developed during the middle seventies, at least in part to explain frustration with the rationalizing reforms introduced during the early seventies. Many of the reforms during this period were designed to increase "accountability" of the schools, and

threatened the norm of loose-coupling by increasing the level of organizational controls. These included formal plannning and evaluation techniques, specifying work tasks in terms of measureable objectives, and insuring that the public has information about what happens in schools.

Institutional and loose-coupling theory provided an explanation for why these schemes were difficult to implement and did not seem to produce the desired results: the reform strategies were inconsistent with existing institutions (including the norms of loose-coupling, professional autonomy, and shielding of outputs from public inspection). Furthermore, as the theory predicts, schools also responded to external mandates for change with "add-on" programs for particular types of students that did not affect the standard program.

But as institutional and loose-coupling theory have been applied, they provide an incomplete analysis of the relationships between schools and their environments. Because buffering of internal practices from the environment is so central to the approach, if one is interested in the relationship between schools and other parts of society, what actually goes on in schools hardly seems to matter within the institutional theory framework. Although the loose-coupling perspective suggests the probability that coupling and control arrangements will vary depending on local conditions (in fact, this is explicitly suggested by Weick (1976) as an advantage of loose-coupling), their variation has not been explored in the context of the theory.

Also, the possibility of changes in institutional agreements -- such as the norms of professional autonomy and lack of formal inspection of outputs -- is never given serious consideration, even though this does not challenge the theory itself. If norms are undergoing changes, one would expect to see new practices adopted, which eventually could be expected to spread to other schools and become institutionalized. DiMaggio and Powell (1983) also emphasize the importance of homogeneity and institutional controls, but suggest that if variations (in the form of innovations) are perceived as beneficial, they will be adopted by other organizations in a process they call "institutional isomorphism," and themselves become institutionalized.

The fact that there might be long-term changes is supported by several theoretical approaches. Organizational theorists has suggested that reactions to environmental uncertainty depend on the level of stress involved (Emery and Trist, 1965; Mintzberg, 1979). Moderate stresses result in decentralization and loosening of controls, whereas more serious stresses cause organizations to tighten controls. Furthermore, extreme "hostility" or stress may result in the emergence of different values, different views of reality, and changes in norms regarding organizational controls. In this view, the assumption that the technology of school management and instruction is uncertain is not regarded as a given, but as an organizational characteristic that can change in response to external uncertainties and pressures.

Also, it is important to take into account that the current system of norms, allowing professional authority and autonomy to practitioners and governance by lay boards, is the result of a political equilibrium achieved during the Progressive Era, and there is no reason to think it will never change. Theorists from a more political perspective suggest that organizational strategies change as a response to challenges to their legitimacy. One such type of response is to increase the use of technical rationality to objectify both goals and the means to achieve them. Another strategy is to introduce corportist forms of representation, in which representatives of interest groups are formally recognized in governance and management (e.g. through advisory boards).1 Heydebrand (1983) has proposed that these changes are related, and that a new organizational form -- technocratic corporatism -- is emerging. Technocratic corporatism is characterized by reliance on technical rationality in administration and by corporatist representation of interest groups. Although these two types of practices appear to affect organizations in different ways (technical rationality affects the type of evidence that is regarded as authoritative and corporatist representation affects the decision-making structure), they share an important

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1. Corporatism is a system of interest representation in which particular interests are formally organized into categories. These categories (which often refer to labor and business, but can also refer to interests not defined on class lines, e.g. clients or staff of schools or other social service organizations) are represented by organizations or individuals that are licensed by the state as the exclusive representative of their groups. The contrasting system of political representation is pluralism, in which representation is territorial. Under pluralism, different interests are not officially recognized by the state and compete for the resources and attention through political parties and votng. The two systems can coexist. They are discussed further in Salganik, 1985.

characteristic: both are strategies that are advantageous to the state because they allow it to have more control over how demands are identified and expressed. These practices and their relationship to external stresses are the subject of the empirical study to be presented below, and will be discussed more fully when the results are presented.

While these strategies may be temporarily successful at restoring legitimacy to state institutions, they can also exacerbate legitimacy declines. Habermas has argued that it is difficult for technical rationality to generate the level of commitment or motivation necessary to sustain normative traditions. (See Foster, 1980.) Once organizational activities of individuals are formally and rationally defined by the organizations, those definitions tend to circumscribe the individuals' sense of commitment to the organizations. The public then views declining commitment as a sign of inadequacy, raising additional doubts and generating further rationalizing reforms. (See Mintzberg, 1979.) Corporatist interest group representation challenges the legitimacy of governance by lay boards and of individuals as sources of input. The reason is that although traditional mechanisms of democratic governance are maintained, policy-making can be shifted from school boards to advisory councils or official representatives of interest groups, making the boards appear ineffectual. Also, when interest groups are formally organized, individuals seeking input can legitimately be told they should approach their organization only through their representatives. Thus, the legacy of these reforms may be neither public confidence nor

new structures that leave actual operations relatively unchanged, but pressures for additional rationalizing reforms.

Lastly, institutional theory's interpretation of reforms prior to the mid-seventies must be interpreted in the context of events that have taken place since, as attention has shifted from providing equality to assuring quality. Some of the earlier rationalizing reforms -- particularly those breaking down tasks into almost minute objectives -- have been abandoned. Some of the newer strategies, such as increasing course requirements for high school graduation, are consistent with what institutional theory would expect. However, other strategies have once again attempted to restore faith in schools by imposing additional rational controls. The notion that tests can be used to certify students and teachers has become widely accepted, which is evidence of increasing rationalization of norms, as well as of practices. Test scores are increasingly used in support of decisions about individual students and policies, and presented as evidence about the quality of education.

The belief that if schools were left alone, the good old days, when teachers were committed to their work and trusted by the public, would return seems overly simplistic. One should not assume <u>a priori</u> that current norms regarding buffering of the technical core of schooling and professional autonomy within broad institutional constraints must remain stable; or that internal changes will be inconsequential to overall relationships between school and the rest of society. In fact, it is precisely these internal changes -- which are regarded as of secondary importance within institutional theory --

which have been regarded as contributing to further legitimacy declines.

This study looks at these internal changes as responses to environmental stress, assuming that norms that regulate schooling may change, and that as they change, some recent reforms may develop into institutionalized fixtures of public schools.

It analyzes changes in management and instruction in public schools as increases in technocratic corporatism: reliance on technical rationality for management and instruction, and formal recognition of interest groups as valid participants in organizational decision-making. First, these organizational characteristics - as they have appeared in public education -- are described more fully and evidence is presented about how prevalent they were in 1976. Then, the idea that the use of these practices is related to environmental characteristics is explored, using information about organizational characteristics of schools and socioeconomic indicators describing the districts in which they are located is presented.

The information about school practices is taken from responses of superintendents and principals to questionnaires administered in 1976-77 as part of the Sustaining Effects Study. The study includes a random sample of 242 schools, stratified by size, geographic region, and poverty level of their districts. (See Hoepner, et al, 1977.) Other than these sampling stratifiers and the state in which the schools are located, the Sustaining Effects Study contains no information about environmental characteristics of schools or ditricts.

It was possible to identify the districts, however, by obtaining the universe sampling tape and matching the appropriate code number from the Sustaining Effects Study data to the number on the universe tape. The district names on the universe sampling tape were then matched to district names in the Department of Education directory of school districts to obtain the Department of Education identification number for each of the districts. (The matches were each verified using a procedure described in Salganik, 1985.) This made it possible to use information about school districts available from the Federal Government, including 1970 and 1980 Census results, an Office of Civil Rights survey conducted in 1976, and enrollment information.

The districts for 240 of the 242 schools in he sample were identified. When cases were weighted to resemble a national random sample (high-poverty schools were originally oversampled), the number of cases available for analysis was 241.

TECHNOCRATIC CORPORATISM IN PUBLIC SCHOOLS

Technical Rationality

Practices which can be characterized as relying on technical rationality are those whose validity is based on a claim that they are "scientific" and can be administered primarily by following a technical protocol. The major contrasts to technical rationality as a basis for school decision-making are rationalities based on human judgment, whose authority is based either on a recognized skill (for professionals) or from position in the organization (for bureaucrats). Both these types of authority make use of technical knowledge in their work; the phenomenon I refer to as authority based on technical rationality occurs when technical evidence overshadows or even

replaces other forms of judgment, i.e. when technical evidence becomes necessary in order for a decision to be accepted.

Reliance on technical evidence to make judgments about individual students and about the school system as a whole has been increasing in recent years. During the late sixties and early seventies, numerous practices were introduced that used a technical approach to classify management or instruction tasks using large numbers of very specific objectives and goals. More recently, tests have become more important to professionals and laypeople, as indicators of the output of schooling. They are often proposed as evidence of how well the system as a whole is performing, and increasing numbers of states are using tests to determine whether individuals should receive high school diplomas or teaching certificates. Results obtained through use of complicated formulas are used to justify political decisions such as who is eligible for special programs, how much state aid local districts receive, and which schools should be closed when enrollment declines.

The Sustaining Effects Study provides evidence about the extent of use of some of these practices. As expected, standardized testing is a widely institutionalized practice. About three-quarters of the districts administer standardized tests to students in every grade at least every three years. Most districts obtain reports of test results for schools, classrooms, and individual students according to grade level and subject area. In addition, about 40% of the districts obtain reports indicating test performance of subgroups of students, such as Title I students.

Objective measures of student performance are an accepted tool for professional judgment. About two-thirds of the principals report that objective measures -- either test scores or performance on instructional objectives -- are used for placing students into regular classrooms. Eighty percent of the principals reported using professional judgment to assign students to classes; only four percent reported assigning students to clases using objective measures only , without any professional judgment. (Some districts assign students randomly or keep classes intact, and thus use neither objective measures nor professional judgment.) Tests are used even more widely to assign student to compensatory programs. Almost all districts use test results, and 20% assign students compensatory programs entirely on the basis of test results.

Many of the reforms during this period emphasized formal planning and evaluation as keys to improvement of management and instruction. Principals reported that they spent an average of 12 hours a year on needs assessment, planning, and evaluation for reading and 10 hours a year for math. About a quarter of the principals said that they spend significantly more time on needs assessment, planning, and evaluation than on curriculum development, an indication that they take a technical approach to their management/supervisory work.

Two approaches relying on technical rationality that are used by teachers in the classroom are diagnostic-prescriptive instruction (in which the curriculum is divided into separate learning objectives and students are tested on whether they have mastered each objective before proceeding to the next) and classroom management systems (which refer to systematic procedures to improve discipline).

Superintendents reported on the average that about 60% of their schools use diagnostic-prescriptive instruction, and about 25% use classroom management systems.

Formal Representation of Interest Groups

The second aspect of technocratic corporatism is the state granting formal representative rights to interest group organizations. For public schools, such practices include use of parent advisory councils to represent parents, recognition of teachers' unions, and creation of programs for special types of students. These practices increase the level of corporatism in school governance because the groups are formally recognized, they have a monopoly of representation, and interests of members are filtered through the representative bodies.

Although they do not necessarily replace the existing pluralist structures of lay boards and professional autonomy, they add another layer of control which introduces two new factors. First, under the exclusively pluralist model, political decisions are made externally by the lay board and only administered by professionals and bureaucrats; with corporatist representation, policy decisions can be shifted so they are made within the internal structure of the sytem. Secondly, individuals who want input into the system must, under corporatist structures, approach the appropriate representative body, and not the organization directly.

This has made governance of schools more manageable because policy-making activity increasingly takes place within school organizations over which they have some control, and possible avenues of input are predetermined. Recognized representatives can be "de-

certified" if their demands or behavior are too discrepant from what is acceptable, and individuals are required to funnel their input through these organizations. But it has also made governance more complex because, in many decision areas, both boards and educators must formally deal with a number of different groups that have a legitimate right to input.

Results from the Sustaining Effects Study indicate that a sizable minority of principals report that parents are involved in formal decision-making in their schools. Almost half use meetings with parent advisory organizations to receive parent complaints. About a third promote parent involvement by including parents in decision-making, and receive input on curriculum decisions from advisory committees that have voting power. These practices, however, do not seem to have replaced non-corporatist participation -- such as PTA meetings, parent conferences, and open houses.

The study indicates that teachers, like parents, have also become more involved in school governance and management. Two thirds of the districts have contracts with teachers' unions, and many of the contracts include provisions related to both working conditions (class size, preparation time) and management (participation in planning and evaluation, material selection, budgeting). This means that these decisons about teachers' work are increasingly being made not by school administrators or boards (with informal input by individual teachers), but through collective bargaining with formal representatives of teachers. In about a third of the schools, systematic teacher input is solicited by principals in decision areas in which teachers have not traditionally been involved: assignment of

students to classes and development of student grading procedures. Formal input is used least frequently in areas related to instruction (selecting materials, planning content), which are more widely considered to be within the scope of teacher decision-making.

Lastly, practices in which students are viewed as members of particular groups provide indirect evidence about whether the group is recognized as a legitimate category for decision-making, and about the salience of group membership for policy-making. About a fifth of the principals responded that group membership is the basis for assigning students to compensatory programs, and forty percent of the districts obtain test reports for subgroups of students.

Additive scales of characteristics indicating technical rationality and corporatist interest group representation were constructed. Individual items relating to each of the concepts were scaled so that they made similar contributions to the scales, and then added. The strength of these scales is that each is based on a number of practices, no one of which is singularly important theoretically. Since the theory is concerned only with the overall level of practices, the more practices that are included in the scale, the better the scale. The scales are limited, however, by the fact that they only include information on the Sustaining Effects Study questionnaires (which were certainly not designed with this purpose in mind). They should be regarded as valid but rough indicators of technical rationality and corporatist representation, rather than as precise measures. The technical rationality scale has a mean of 6.2 and a standard deviation of 1.8; the corporatist representation scale has a mean of 4.5 and a standard deviation of 2.4. The correlation

between the two scales is .47, indicating that technical rationality and corporatist representation tend to occur together, but that they also occur independently.

Thus, many public schools have adopted practices that rely on technical rationality for decision-making and that introduce corporatist interest group representation. With the exception of practices related to use of standardized tests as intput into professional judgment, the practices are not institutionalized. But they are used by a sizable minority of schools.

PUBLIC SCHOOLS' ENVIRONMENT AND TECHNOCRATIC CORPORATISM

As I have mentioned in the first section of this paper, it has been proposed that organizations adopt technocratic and corporatist practices because these practices provide means to contain conflict generated by external pressures. Both types of practices allow organizations to contain diffuse and generalized dissatisfaction, by incorporating conflict areas into the domain of official organizational activity. Management and instruction procedures that rely on technical rationality help to focus the discussion of controversial or divisive issues around techniques which are commonly accepted as value-neutral, and thus politically neutral, such as test scores or technical formulas. This increases the power of those who can manipulate these techniques, gives professionals and governing boards more control over how problems, goals, and alternatives are defined, and may obscure political decisions from the public. Incorporating interest groups into the formal decision-making structure allows schools to assert some control over their demands and to delegitimize demands made outside the representative structure.

The basic hypothesis for this analysis is that both corporatist representation and technical rationality have occurred as responses to pressures from the environment that have changed the means schools use to achieve their goals. The environment is important for schools in two ways: as a source of resources and a source of demands. When resources are scarce or declining, or when demands are increasing, the environment is uncertain. New practices which increase technical rationality or corporatism in governance are seen as attempts to reduce uncertainty making problems more manageable.

The analysis includes two indicators of levels of resources: average family income and percent of families with children (taken from 1970 Census data). It includes two indicators of whether resources are contracting: enrollment decline from 1969 to 1976 as a percent of 1969 enrollment (from Department of Education directories) and average family income decline from 1970 to 1980 as a percent of 1970 average family income (from 1970 and 1980 Census data). It includes three indicators of demands from the environment: percent of enrollment that is black (from 1976 OCR survey), percent of enrollment that is Hispanic (from 1976 OCR survey), and change in percent of 6-17 year olds who are black between 1970 and 1980 (from 1970 and 1980 Census data).2 Availability of resources (resource levels) are expected to related negatively to practices using technical rationality and corporatist interest group representation; resource declines and demands from the environment are expected to relate positively to these reforms.

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2. The 1970 Census data do not include information about districts with an enrollment of less than 300 students. This reduced the weighted number of districts available for analysis to 225.

The log of district enrollment is included as a control variable because organizational size is usually associated with rationalization and formalization of practices in organizations. These eight independent variables are related to corporatist representation and technical rationality through correlation, regression and canonical correlation analyses.

In general, the zero-order correlations among the independent variables (shown in Table 1) suggest that resource decline, resource level, and demand variables correlate among themselves, and that declining resources and increased demands tend to occur together. The exception is that average family income, a resource, is positively correlated with three indicators of stress: enrollment decline, income decline, and increases in the percentage of school-age children who are black.

The correlations between the independent variables and the two dependent variables (shown in Table 2) are generally in the expected direction. Three of the independent variables -- percent black, percent Hispanic, and income decline -- have correlations of at least .24 with both dependent variables (significant at the .01 level). Three other variables -- average family income, enrollment decline and black change -- are correlated only with technical rationality. From another perspective, technical rationality correlates with six of the seven environmental variables. (Its correlation with percent of families with children is not statistically significant.) Corporatist representation correlates with three of the environmental variables: percent black, percent Hispanic, and income decline. Log of enrollment correlates strongly with both dependent variables. The only

statistically signifcant correlation that is not in the expected direction is between average family income and technical rationality.

Regression analyses indicate that the eight independent variables in the basic model jointly explain about a quarter of the variance in each of the dependent variables, technical rationality and corporatist interest group representation (Table 3). The results suggest that, if the joint effects of the independent variables are removed from consideration, there are relationships between external characteristics of school districts and the organizational strategies they use.

The largest independent effect on technical rationality is that of average family income, which indicates that districts with higher financialy resources use more practices that rely on technical rationality. Controlling for other factors, districts with a higher percentage of black students use more practices relying on technical rationality; and those with a higher percentage of families with school-aged chilren use fewer.

The largest independent effect on corporatist interest group representation is that of the log of district enrollment: the coefficient is large and positive. The effect of income decline is large and positive; in addition, percent Hispanic has a significant positive effect on corporatist representation and change in percent black has a significant negative effect. It appears that districts use different strategies in response to different external conditions. Not one of the regression coefficients is significant for both technical rationality and corporatist interest group representation.

These regression coefficients reflect the effects of two different processes. Assuming that there is variation in the stress that districts experience and that local external conditions are valid indicators of that variation, the coefficients provide evidence of whether organizational practices are responses to external stress -- resource shortages and increasing demands. Alternatively, assuming that there have been significant society-wide stresses on the education system, the coefficients can be interpreted as evidence about whether local external conditions affect the types of organizational practices that are adopted in response to those stresses.

If the coefficients are interpreted only as indicators of amount of stress districts experience, the strong, positive relationship between family income and technical rationality is not consistent with the expectation that technical rationality is a response to resource shortages. However, the relationship can also be interpreted as evidence of how resources affect districts' responses to stress. According to this interpretation, if funds are available, technical rationality is the preferred response of school districts to stress from the outside because -- unlike corporatist representation -- it doesn't require that the districts give up any governance or management authority. But it takes financial resources to buy tests, to buy or produce test reports, to conduct evaluations, or to design technical indices geared towards policy-making. The scarcer these resources are, the more the district may need to spend them on heating oil and salaries, and they may be reluctant to commit themselves to practices that require additional funds. Only districts with

financial resources can afford to control environmental stress through using technical rationality. Thus, one would expect the two to be positively related.

The strong, positive effect of income decline on corporatist representation is consistent with the interpretation that when funds are not available for practices that rely on technical rationality, the alternative of allowing formal participation of interest groups is used to contain stress-related conflicts.

Unfortunately, a positive relationship between technical rationality and average family income) is not inconsistent with an alternative interpretation: that technical rationality is generated through a process of real technological or professional improvement, just as its ideology argues.3 According to this argument, practices relying on technical rationality will be found in districts that have the resources to use the most up-to-date technology, or are the most professionally "advanced".

Each of these interpretations for the positive relationship between technical rationality and average income, as well as the expectation that they will relate negatively, are probably overly simple. In reality, use of technical rationality probably represents both a strategy for easing conflict created by external stresses and an improvement in the technology of education.

An additional complication is that although the different reasons for increased technical rationality (legitimacy challenges, isomorphic pressures from professionals, technological advances) may involve the adoption of different practices, the scale used for this study doesn't

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3. Most ideologies (like stereotypes) have some source in truth.

distinguish between them. When a variable indicating that principals spent significantly more time in planning and evaluation than curriculum development (an indicator that involves the contrast between a technical and a more traditional orientation towards school administration) was regressed on the independent variables, the effect of average family income was large and negative, and the effect of income decline was moderate and positive. These results are consistent with the theory that the technical orientation is a reaction to environmental uncertainties. (The effect of average family income was large and positive, and the effect of income decline was not significant in the original regressions.)

The results also suggest that school districts respond differently to external stresses depending on racial/ethnic characteristics of their students. Holding other demands and resources constant, the level of corporatist interest group representation is positively related to the percent of students who are Hispanic. In contrast, the level of technical rationality is positively related to the percent of students who are black. A possible explanation for this finding is that including blacks in decision-making is viewed as threatening. When resources are similar, districts with a higher percentage of black students are willing to invest in technical rationality as a way to avoid granting corporatist representation to black interests. This reluctance to grant corporatist representation is even stronger in districts where the percentage of blacks is increasing. These districts have a lower level of corporatist representation than similar districts in which the percentage of blacks is not increasing.

Schools in districts with a high percentage of families with school-age children use fewer practices relying on technical rationality than other districts, controlling for other factors. This is consistent with the argument that these districts are likely to have a relatively high degree of public support, less expectation of contraction, and less need to defend themselves against outside critics. Percentage of families with children is unrelated, however, to corporatist representation.

The effect of enrollment on corporatist representation indicates that larger districts are more likely to supplement the traditional school board governance with formal participation by interest group representatives. Presumably, the larger the district, the less the school board is involved in the actual running of the schools, and the more additional governance mechanisms are perceived as needed when stresses arise.

Interpretation of the results concerning log of enrollment, the indicator of organizational size, also merits brief discussion. Log of enrollment was included in the analysis as a control variable. It is more descriptive of schools organizations themselves, than of their environments. But the variance associated with size is not without theoretical interest. It was suggested that in bigger districts, there is more need to supplement traditional channels of input than in smaller ones. The theory of institutional isomorphism predicts, however, that when new practices are adopted by institutional organizations, they will tend to spread, regardless of whether the characteristics that originally stimulated the changes are present. If practices used by large districts are circulated through the

professional network as advances, they could be expected to be adopted by smaller districts, through processes of isomorphism.

The results concerning the two highly correlated variables, log of enrollment and percent black (r=.54) must be interpreted cautiously. First, the coefficients are very sensitive to sampling variation that results in small changes how enrollment and percent black correlate with the dependent variables. In addition, the counfounded variance may have an effect on the dependent variable -- through either of the independent variables -- and these can't be identified with this type of analysis.

The final statistical analysis is a canonical correlation which allows technical rationality and corporatist representation to be considered jointly as a dependent variable. The canonical correlation procedure determines the linear combination for both the dependent and independent variables that maximizes the correlation between the two linear combinations. After the first such combination is extracted, the remaining variance is used to determine other such combinations. The square of the canonical correlation between the linear combination is analogous to r2 in a regression analysis. Zero-order correlations between the individual variables and the linar combinations to which they contribute (analagous to factor loadings) are used to interpret the contributions of individual variables to the composites. This analysis was motivated by the fact that it has been suggested that technical rationality and corporatist representation are both organizational responses to organizational stress, and are both characteristics of a post-bureaucratic organizational form.

For the set of linear composites, the independent variable composite has a squared canonical correlation of .36 with the dependent composite. The canonical dependent variable is strongly and similarly related to each of the individual dependent variables (both loadings above .8); the canonical independent variable is strongly correlated with log of enrollment and income decline, and moderately correlated with average family income, percent black, and percent Hispanic. Thus, one would expect to find practices associated with technocratic corporatism in large districts, and in districts where income declined during the seventies. One would also expect to find them, although not as consistently, in districts with a relatively high percent of black or Hispanic students and with high average family income.

The second canonical variate produces composites which have a squared canonical correlation of .13. Here the dependent variable is negatively correlated with technical rationality and positively correlated with corporate representation. The loadings for the independent variables indicate that average family income, black change, and enrollment decline are associated with technical rationality and not corporatist representation. It is important to remember that because the variance in both sets of variables associated with the first canonical variate has been removed, the independent variables here explain only a very small portion of the total variation in the independent variable.

In conclusion, technical rationality and corporatist representation in public schools are each related to external characteristics of school districts. More practices relying on

technical rationality are found in districts that have financial resources, a relatively high percentage of blacks, or a low percentage of families with school-aged children. More practices using corporatist representation are found in large districts, districts with declining income, or with a high percentage of Hispanic students; fewer such practices are found in districts with an increasing percentage of black children. Thus, characteristics describing the availability of resources and the presence of blacks are related to favoring adoption of technical rationality over corporatist representation; large size and the presence of Hispanics are related to adoption of practices using corporatist representation.

When canonical correlation was used in an analysis that considers technical rationality and corporatist representation as alternate characteristics of technocratic corporatism, log of enrollment and declining income were its strongest predictors.

SUMMARY

This paper has proposed a theoretical framework from which to interpret recent changes in internal management and instruction practices in schools. These practices have been characterized by increased reliance on technical rationality for decision-making, and the inclusion of representatives of interest groups in decision-making within school organizations. Both types of reforms have been associated with the development of technocratic corporatism, a post-bureaucratic organizational form.

According to the conceptual framework that has been developed, these changes in the internal activities of schooling are viewed as responses to environmental uncertainty in the areas of material

resources and legitimacy. Both increases in technical rationality and adoption of corporatist representation of interest groups increase certainty because they delimit problems, making them more manageable.

Many of the changes were inconsistent with existing norms with regard to professional autonomy and plebicitarian governance, and numerous change efforts were thwarted. But conditions of scarce resources and increased demands remain, and additional rationalizing reforms continue to be suggested. It is possible that new norms and institutions will develop as this process continues.

The results of the empirical portion of this work indicate that schools do exhibit characteristics of technocratic corporatism, but in a manner that indicates they are not generally institutionalized. Most of the practices included on Sustaining Effects Study questionnaires that provide evidence about technical rationality or corporatist interest group representation are found in a sizable minority of schools. When these practices are combined into separate additive scales, the scales for technical rationality and corporatist representation have a correlation of .47. Corporatist representation has more variation than technical rationality.

The results of regression analyses relating management and instruction practices to measures of environmental resources and demands, and to organizational size, suggest that technical rationality has been used to respond to legitimacy challenges when districts can afford it; when they can't -- or when they have the addition stresss of income decline -- they adopt corporatist representation practices instead. Also, technical rationality is preferred over corporatist representation as the percentage of blacks

increases. There is a positive relationship between percentage of students who are black and techical rationality; districts in which the percentage of blacks is increasing use less corporatist representation than districts that are similar on other characteristics. This pattern does not appear for Hispanic students. The explanation suggested for this finding is that districts perceive blacks as threatening and are reluctant to give modify governance and management in a way that would increase their power.

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TABLE 1: CORRELATIONS AMONG INDEPENDENT VARIABLES <1>

	LOG ENROLL	AVG FAM INCOME	PCT BLACK	PCT HISP	PCT FAM W/KIDS	ENROLL DECLINE	INCOME DECLINE	BLACK CHANGE
LOG ENROLLMENT		.24	.54	.27	-.05	.10	.26	.31
AVG FAM INCOME			-.12	.04	.38	.16	.26	.26
PCT BLACK				.06	-.18	.25	.30	.31
PCT HISPANIC					.10	-.05	.13	.05
PCT FAM W/KIDS						-.03	-.18	.04
ENROLL DECLINE							.28	.25
INCOME DECLINE								.33
BLACK CHANGE								
MEAN	8.54	10133.8	.11	.03	.56	.06	-.03	.01
STD DEV	1.80	2680.3	.19	.09	.08	.07	.11	.05
SKEWNESS	.26	1.2	2.06	4.53	.10	.10	-.63	3.07

<1> n=225, correlations greater than .20 are significant at .001 level, greater than .15 at .01 level, greater than .11 at .05 level.

Table 2:
Correlations Between Independent Variables And Dependent Variables <1>

	TECHNICAL RATIONALITY	CORPORATIST REPRESENTATION
VARIABLES IN BASIC MODEL		
Log Enrollment 1976	.37	.40
Average Income 1970	.30	.08
Pct Students Black 1976	.28	.24
Pct Students Hispanic 1976	.25	.27
Pct Families w/Kids 1970	-.06	-.06
Enrollment Decline 1969-76	.19	.02
Income Decline 1970-80	.27	.30
Black Change 1970-80	.19	.01

<1> n=225, Correlations greater than .20 are significant at .001 level, greater than .15 at .01 level, greater than .11 at .05 level.

TABLE 3: RELATIONSHIPS BETWEEN ORGANIZATIONAL AND ENVIRONMENTAL CHARACTERISTICS

	LOG ENROLL	AVERAGE INCOME	PCT BLACK	PCT HISP	PCT FAM W/KIDS	ENROLL DECLINE	INCOME DECLINE	BLACK CHANGE	R-SQUARED
TECHNICAL RATIONALITY									
Beta	.15	.32**	.19*	.07	-.13*	.08	-.04	-.03	.243
(p)	(.06)	(.00)	(.02)	(.26)	(.05)	(.23)	(.60)	(.72)	
CORPORATIST INTEREST GROUP REPRESENTATION									
Beta	.32**	-.01	.04	.16**	-.00	-.04	.26**	-.18**	.253
(p)	(.00)	(.91)	(.61)	(.01)	(.99)	(.53)	(.00)	(.01)	

Table 4: Canonical Correlations

Technical Rationality and Corporatist Interest Group Representation

	FIRST LINEAR COMPOSITE		SECOND LINEAR COMPOSITE	
Canonical Correlation	.54		.36	
Canon Corr-Squared	.36		.13	
Wilks Lamda F	.00		.00	
Redundancy[1]	.21		.04	
	Weights[2]	Loadings[3]	Weights	Loadings
Dependent				
Tech Rat	.55	.82	-.96	-.57
Corp Rep	.64	.87	.91	.49
Independent				
Log Enrollment	.53	.83	.40	.02
Average Income	.32	.40	-.86	-.59
Pct Black	.24	.40	-.39	-.16
Pct Hispanic	.26	.44	.20	.35
Pct Fam w/Kids	-.14	-.13	.35	-.01
Enroll Decline	.03	.22	-.31	-.46
Income Decline	.34	.62	.54	.06
Black Change	-.24	.21	-.38	-.48

1. Proportion of variance of total standardized variation of dependent canonical variable (= number of individual dependent variables) explained by linear combination of independent variables.

2. Weights (coefficients that produce linear composites)

3. Loadings (zero-order correlation between each independent variable
and linear composite of dependent variables)